DAR Submit Tool GUI Dependencies and Interactions

A. VNIR & 24.00

Interaction problem: When the telescope settings "VNIR ONLY" and "VNIR Stereo" are entered, the user can enter up to a 24.00 degree look angle in the Advanced Viewing Geometry "Specified Look Angle" and "Look Angle Range." This also effects a certain number of yet undetermined "Specific View Swath IDs." A Specific View Swath ID is, as we currently understand it, an integer between the value of 1 and 40, inclusive, that corresponds to a preset look angle.

When any telescope selection that includes the SWIR and/or TIR telescope is selected, the user is restricted to Advanced Viewing Geometry settings for "Specified Look Angle" and "Look Angle Range" that can not exceed 8.55 degrees. Further, the user is restricted to a subset of "Specific View Swath IDs" whose integer entries correspond to an angular setting that does not exceed 8.55 degrees.

- In the default condition, "VNIR, SWIR, & TIR" is the telescope setting. When "VNIR, SWIR, & TIR", "SWIR & TIR", or "TIR Only" is the setting, the user should be able to select a look angle range maximum of 8.55. In such a case, the "Advance Viewing Geometry" screen should be labeled indicating that 8.55 is the maximum value that can be entered and the text entry field should disallow entries greater than 8.55.
- When "VNIR Only" or "VNIR Stereo" is the setting, the user should be able to select a look angle range maximum of 24.00. In such a case, the "Advance Viewing Geometry" screen should be labeled indicating that 24.00 is the maximum value that can be entered and the text entry field should disallow entries greater than 24.00.
- There is probably a range of corresponding view SWATH ID's that are within the 8.55 range and within the 24.00 degree range. So View Swath ID's allowed and labels should change appropriately based on the telescope settings.
- If the user attempts to select the SWIR or TIR telescope after entering a value greater than 8.55, a warning dialog should appear stating that SWIR/TIR can not be set when any Advanced Viewing Geometry settings have been set with a value exceeding 8.55 degrees.
- Under all conditions Minimum look angle should be less then or equal to the maximum look angle in the look angle range.

B. Implementation Urgency

The Special Requests dialog contains widget controls for all user-definable parameters that affect the priority in which all ASTER requests are queued and/or produced. One parameter, Implementation Urgency, increases the priority of the ASTER request. JPL recognizes the potential for abuse of this setting. To prevent this, they have directed that when the Implementation Urgency is set to "Urgent" (as opposed to the default, "Normal"), the user can only request observations within the next 18 calendar days. This value considers 16 days for one satellite period plus two days for administrative and scheduling "slop." By allowing a temporal request of only one satellite period, the ASTER team hopes to curtail abuses of the "urgent" setting. This policy has implementation impacts on the DAR Submit GUI. The following implementations have been discussed with HTI - Arlington.

- If the Implementation Urgency is set to "Urgent," the temporal requirements screen should not accept a xAR beyond 18 days from the current day. Selecting "Temporal Requirements" after setting the implementation urgency to "Urgent" should result in a message dialog that appears before the Temporal Requirements window pops up advising the user of the 18 day limitation. If the user tries to

enter a value beyond 18 calendar days and attempts to "Apply" the entry, an error dialog should result. This is true for both the Multiple Observation and Specific Observation conditions.

- If the user has already set a time that exceeds 18 days and then tries to change the Implementation Urgency to the "Urgent" setting, a warning dialog should result advising the user that (1) "Urgent" cannot be picked while time requirements exceed 18 days from the current date, and (2) the time requirement must be changed before "Urgent" can be selected.

C. Specific Observations

Problem: On the Temporal Requirements screen, when a Specific Observation Time is selected – any AOI information that has been entered will be ignored. Further, a Specific Observation Time can only be set for a duration that does not exceed 16 minutes. This 16 minute limit reflects hardware limitations on the AM-1 Satellite/ASTER Instrument Platform. The reason that the AOI information is ignored is because the satellite is where it is at a given time and specifying an AOI will not change the fact the satellite can only image the area that it happens to be over during the specified time. It is anticipated that Specific Observation Time will rarely be used and when it is, it should be used only by those with precise knowledge of the spacecraft flight plan or for calibration purposes.

Three cases are anticipated in which the conflict between Specific Observation Time and Spatial Requirements could potentially confuse the user.

1. When a Specific Observation Time is specified before any AOI data is entered. In this case, when the "Specific Observation Time" radio button is selected, the user should get a message dialog that says "Any Spatial Data will be ignored."
2. When a Specific Observation Time is specified after AOI data has been entered. In this case, when the "Specific Observation Time" radio button is selected, the user should get a message dialog that says "Any Spatial Data will be ignored."
3. When user attempts to enter AOI data after a Specific Observation Time has been specified. When Spatial Requirements button is selected, a warning dialog stating "You have selected Specific Observation Time. This will cause any AOI data you enter to be ignored" should appear prior to the appearance of the Spatial Requirements screen.

D. Advanced Viewing Geometry – mutual exclusivity of choices

In the re-designed dialog, there should be two radio boxes: one for "Look Angle and View Swath" and another for "Sun Angle."

The "Look Angle and View Swath" radio box should have the following choices and corresponding behaviors:

- When the "default" choice is chosen, all other choices should be grayed out.
- When the Specified Look Angle is chosen, the label and widget for Specified Look Angle is sensitized and all others should be grayed out.
- When Specific View Swath ID Look Angle is chosen, the label and widget for Specific View Swath ID is sensitized and all others should be grayed out.
- When Look Angle Range is chosen, the labels and widgets for Acceptable Look Angle Range are sensitized and all others should be grayed out.

"Sun Angle"

- When the "default" choice is chosen, all other choices should be grayed out.

- When Sun Angle Range is chosen, the labels and widgets for Acceptable Sun Angle Range are sensitized and all others should be grayed out.

E. Temporal Requirements –

Multiple vs. Specific Observation Time.

On the temporal requirements window, the user is given the choice of entering Multiple Observation times or a Specific Observation time. This selection is made via a radio box, the default choice for which is the "multiple observation" selection. When "multiple observations" is selected, the user can set a xAR Lifetime Start date, end date, a repeat interval, and an acquisition window length. This can be done by manipulating the "temporal widget," a timeline tool, or via text entry fields found below the time line. When "specific observation" is selected, the user can specify a date and time for a single observation and the duration of that observation (not to exceed 16 minutes). The specific observation data is entered via text fields. The timeline (and related controls) are not available to set the specific observation time. By unavailable, it is meant that the temporal widget is unmanaged and the time increment controls that set the timeline display are grayed-out. Further, the xAR Lifetime, Repeat Interval, and Acquisition Window text fields are replaced with the specific observation text field controls. Because the "specific observation" setting causes the disregard of any AOI information that might be set, it is not desirable to use the "specific observation" setting except under certain circumstances. By not providing a timeline tool, it is intended to dissuade novel users from unintentionally selecting this option.

F. Acceptable Look Angle Range –

Within the Advanced Viewing Geometry dialog, there is a dependency among the components for the user-definable field "Acceptable Look Angle Range."

- If either Minimum Acceptable Look Angle Range or Maximum Look Angle Range is set to +/-, then both must be.
- If one is set to "+" or to "-", than the other can be set to either "+" or "-" but not "+/-"
- The user should not be able to submit a Look Angle Range request in which the value for Minimum Look Angle Range exceeds that of Maximum.

G. Special Requests –

On the Special Requests dialog, there are two fields that, when selected, require additional action on the part of the user -- the "Request Direct Downlink" area and the "Request Expedited Data" area. If either of these are set to "yes", then the user is required to provide text to justify the request. A Justification text field is provided for both the "Request Direct Downlink" area and the "Request Expedited Data" area. Each is sensitized when "yes" is checked in the corresponding radio box. The GUI should check to make sure data has been entered for each Justification field for which "yes" was checked.

Yet undetermined, the Request for Expedited Data might need to be set up such that a call to MSS is made to check the user profile to ensure that there privilege level is high enough to request this option. If it is not, the GUI may have to desensitize this selection – TBD.

Be advised: Direct Downlink will probably be removed since the only direct download site exists in Japan.

H. Telescope Selection –

The “Telescope Selection” area and the “Gain Settings” area are highly interdependent. The telescope selection area allows the following options for user-selectable telescope configurations”

VNIR, SWIR, & TIR (default)
VNIR Only
VNIR Stereo
SWIR & TIR
TIR Only

The Gain Settings lists the bands available on the VNIR and SWIR telescopes for which the user can select the gain settings. VNIR has three bands (labeled 1-3) and SWIR has six bands (labeled 4-9). With the VNIR bands, the user can select gain settings of HIGH, MEDIUM, LOW, and ANY. The SWIR bands can be set to HIGH, MEDIUM, LOW, VERY LOW, and ANY. The gain setting for each of these bands can be set via an options button (one is provided for each band). However, since not all of the bands can be set for each telescope setting, it is desirable that only the bands available for a given telescope be sensitized to prevent the user from doing unnecessary work and creating false impressions of GUI/System functionality. The following is a list of the appropriate combinations of telescope selections and gain settings.

VNIR, SWIR, & TIR (default)	All
VNIR Only	Bands 1-3
VNIR Stereo	Band 3 Only
SWIR & TIR	Bands 4-9
TIR Only	None